Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

season, and how many weeks or months must pass before it got to the sea, where it had been in the interval, and what had become of the air from which it fell, they need not wonder that the distance of the earth's axis of equilibrium of centrifugal force from the instantaneous axis of rotation should often vary by five to ten metres in the course of a few weeks or months.

ON THE QUESTION OF THE INFLUENCE OF THE SUN UPON MAGNETIC STORMS ON THE EARTH [BY LORD KELVIN, PRESIDENT OF THE ROYAL SOCIETY].

Several communications to the Royal Society on the subject of simultaneous magnetic disturbances found by observations at magnetic observatories in different parts of the world justified him in saying a few words regarding terrestrial magnetic storms, and the hypothesis that they were due to magnetic waves emanating from the sun. Considering probabilities and possibilities as to the history of the earth from its beginning to the present time, he found it unimaginable, but that terrestrial magnetism was due to the greatness and the rotation of the earth. It seemed probable, also, that the sun, because of its great mass and its rotation in the same direction as the earth's rotation, was a magnet with polarities on the north and south sides of its equator, similar to the terrestrial northern and southern magnetic polarities. It was, therefore, a perfectly proper object for investigation to find whether there was or was not any disturbance of terrestrial magnetism, such as might be produced by a constant magnet in the sun's place with its magnetic axis coincident with the sun's axis of rotation. Even if (which did not seem very probable) we were to be led to believe that the magnetic force of the sun was directly perceptible on the earth, we might be quite certain that this steady force was vastly less in amount than the abruptly varying force which, from the time of Sir EDWARD SABINE'S discovery, forty years ago, of an apparent connection between sun spots and terrestrial magnetic storms, we had been almost led to attribute to disturbing action of some kind at the sun's surface. It had been a very tempting hypothesis that quantities of meteoric matter suddenly falling into the sun were the cause, or one of the causes, of those disturbances to which magnetic storms on the earth were due. We might, indeed, knowing that meteorites fall into the earth, assume without doubt that many more of them fall, in the same time, into the sun. Astronomical reasons, however, led him long ago to conclude that their quantity annually, or per century, or per thousand years, was much too small to supply the energy given out by the sun in heat and light radiated through space, and led him to adopt unqualifiedly HELMHOLTZ'S theory that work done by gravitation on the shrinking mass was the true source of the sun's heat, as given out at present, and had been so for several hundred thousand years, or several million years. It seemed very improbable that meteors fall in at any time to the sun in sufficient quantity to produce dynamical disturbances at his surface at all comparable with the gigantic storms actually produced by hot fluid rushing up from below, and spreading out over the sun's surface. The magnetic storm of June 25, 1885, showed that in eight hours of a not very severe magnetic storm, as much work must have been done by the sun in sending magnetic waves out in all directions through space as he actually does in four months of his regular heat and light. This result, it seemed to him, was absolutely conclusive against the supposition that terrestrial magnetic storms were due to magnetic action of the sun, or to any kind of dynamical action taking place within the sun, or in connection with hurricanes in his atmosphere, or anywhere near the sun outside. It seemed as if they might also be forced to conclude that the supposed connection between magnetic storms and sun spots was unreal, and that the seeming agreement between the periods had been a mere coincidence. We were certainly far from having any reasonable explanation of any of the magnetic phenomena of the earth; whether of the fact the earth was a magnet; that its magnetism changed vastly, as it did from century to century; that it had somewhat regular and periodic annual, solar-diurnal, lunar-diurnal, and sidereal-diurnal variations, and (as marvelous as the secular variation) that it was subject to magnetic storms. The more marvelous, and for the present inexplicable, all these subjects were, the more exciting became the pursuit of investigations which must, sooner or later, reward those who persevered in the work. We had at present two good and sure connections between magnetic storms and other phenomena; the aurora above, and the earth currents below, were certainly in full working sympathy with magnetic storms.